

REMARKS

Claims 5-16 remain in this application.

For clarity, and not for reasons relating to patentability, the independent claims have been amended to clarify that the claimed generators are passable to at least one software component that requires data provided by the generators (see e.g. paragraph [0043] lines 11-12, and paragraph [0169] lines 26-27).

35 U.S.C. 101 Rejection

Claims 5-9 stand rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter. Persons skilled in the art will understand that software libraries are embodied on computer-readable storage media for access by application developers. Independent claim 5 has been amended to clarify that the system comprises an object-oriented library comprising library objects stored on a computer-readable storage medium. The objects impart the functionality as defined in the claim. When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium since use of the technology permits the function of the descriptive material to be realized.¹ Accordingly, a computer program per se is not being claimed. Withdrawal of this rejection is respectfully requested.

35 U.S.C. 103 Rejections

Claims 5-9 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Microsoft Excel 2000 ("Excel") in view of Browne et al. ("Browne", U.S. PG-Pub 2003/0014356 A1). Claims 10, 11, 13 and 14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Browne in view of Excel. Claims 12, 15 and 16 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Browne, in

¹ See e.g. MPEP 2106.01

view of Excel and Dembo et al. ("Dembo"). The Applicants traverse all rejections, and respectfully submit that the claims remaining in the application are not obvious in view of the cited art for the reasons provided below.

The Examiner cites Browne as an example of a system that teaches simulating financial portfolios. For example, Browne discloses that in a parametric simulation, the change in the value of a given price for a security can be simulated by changing the value of the risk factors in a model (see e.g. Browne, col. 1 line 64 to col. 2 line 11). Browne, however, does not disclose what specific types of components are utilized in the development of an application, which when executed, performs such simulation. The skilled person could develop an application that effects changes in security prices without the use of the Applicants' claimed generator, map and/or accumulator data structures by simply writing code that performs security pricing without using those particular data structures. Not only does Browne fail to teach the use of the particular data structures recited in the Applicants' claims (e.g. generators, maps and/or accumulators), Browne also fails to suggest why that particular set of data structures might be beneficial in the development of his system.

It is acknowledged that whether or not the Applicants' claimed data structures are used in developing an application to perform the types of simulations described in Browne, the resultant application might nevertheless be capable of generating security prices. However, in the absence of the Applicants' teachings, it is respectfully submitted that the ordinary skilled person considering Browne would not be specifically guided to the use of the Applicants' specific data structures, and would at least equally, if not certainly, be led away from the Applicants' teachings to some other manner of developing the application that does not use Applicants' specific data structures.²

² When the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious (*KSR Int'l Co. v. Teleflex Inc.*, No. 04-1350 (April 30, 2007)).

The Examiner further acknowledges in paragraph 2 of the office action that: "Excel is a program that a developer can instruct to call any of a large library of functions to solve data analysis problems" [emphasis added]. Excel does not teach that any particular subset of such functions or combinations thereof may be particularly beneficial for use in constructing software library objects for developing risk management software. The ordinary skilled person would be left with the difficult task of wading through at least the hundreds of functions that Excel might provide in an attempt to determine which functions might be most appropriate for certain risk management applications. However, in the absence of the Applicants' teachings, it is respectfully submitted that the ordinary skilled person considering Excel would not be specifically guided to the use of the Applicants' specific data structures, and would at least equally, if not certainly, be led away from the Applicants' teachings to the use of some other Excel functions that would not provide the same advantages (as noted below) in terms of reusability and efficiency as those provided by the particular set of data structures employed by the Applicants.³

As noted at paragraph [0168] of the Applicants' description, this particular set of claimed data structures allows for efficiency in the coding of scenario-based simulation risk management applications. At the time that the Applicants' invention was made, the use of *scenario-based simulations* in risk management applications was relatively new. It is respectfully submitted that there was previously no recognized need for a customized set of structures for this type of risk management applications when the need to generate a set of libraries catered specifically to the simulation-based world in the field of risk management did not yet exist. Developers were accustom to using "standard" libraries with a wide variety of general functions, and developers of risk management applications utilized functions from these standard libraries, which did not

³ When the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious (*KSR Int'l Co. v. Teleflex Inc.*, No. 04-1350 (April 30, 2007)).

specifically address whether scenario-based simulations were to be performed by the applications.

The Applicants' came to discover that this specific set of data structures (e.g. generator, maps, accumulators) was particularly useful in developing risk management applications where scenario-based simulations were required, recognizing that these applications consistently required the production and transformation of sequences. The Applicants' realized that the ability for claimed generators to be passable to other software components could also minimize data storage requirements (see e.g. paragraph [0132] lines 28-32).

Furthermore, before the use of scenario-based simulations in risk management applications became more widespread, if the ordinary skilled person were faced with the problem of developing an application to price certain financial instruments such as a stock or portfolio as described in Browne, that ordinary skilled person would not force himself to use a particular set of data structures that would, hypothetically, also allow him to develop other type of risk management applications not specifically intended for pricing instruments. The Applicants' also came to recognize that there was a need for a set of data structures that could be re-used for different types of risk management applications where scenario-based simulations would be performed, which was not previously recognized. Notably, the claimed libraries taught by the Applicant have been employed in the development of at least three different types of risk management application products (i.e. a scenario generation engine, a portfolio pricing application, an application to evaluate the credit risk associated with a portfolio), each of which have enjoyed commercial success and continues to be sold by the assignee of the present application. The Applicant respectfully submits that such evidence of commercial success serves as objective evidence

relevant to the issue of obviousness, in the Applicants' favor, which should be duly considered by the Examiner.⁴

The Examiner will appreciate that even if the Applicants' claimed data structures *may* be used to produce the same results as the functions described in Browne and/or Excel, it does not follow that it would have been obvious to do so at the time the Applicants' invention was made. The Applicants' claims recite a very particular set of data structures that does not preempt the use of all libraries or functions to develop risk management applications, such as those provided by standard programming libraries or the functions provided by Excel. Moreover, it is respectfully submitted that the cited references do not provide a teaching, suggestion or motivation to combine selected features from Excel to a system such as that described in Browne for the reasons provided above.

The Applicants note that the Supreme Court's KSR decision⁵ did not reject the use of a "teaching, suggestion or motivation" analysis as part of an obviousness analysis. The Supreme Court characterized the analysis as a helpful insight. It is respectfully submitted that the absence of a teaching, suggestion or motivation is a significant point in the Applicants' favor, as this absence is indicative of non-obviousness.

Although the Supreme Court did not reject use of a "teaching, suggestion or motivation" analysis, the Supreme Court did say that it was not the only possible analysis of an obviousness question. In the event that the Examiner chooses to pursue a different avenue for rejection, the Examiner is invited to explicitly identify the rationale and articulate the reasons on which such rejection is based, and it should be noted that any new avenue would be a new ground for rejection not due to any action by the Applicants.

⁴ *Graham v. John Deere Co.*, 383 U.S. at 17, 148 USPQ at 467.

⁵ KSR International Co. v. Teleflex, Inc., No. 04-1350 (April 30, 2007)

The Applicants further respectfully reminds the Examiner that, even after KSR, the following legal principles are still valid, having been endorsed by the Supreme Court or having been unaffected by its decision: (1) the USPTO still has the burden of proof on the issue of obviousness; (2) the USPTO must base its decision upon evidence, and it must support its decision with articulated reasoning (slip op. at 14); (3) merely demonstrating that all elements of the claimed invention exist in the prior art is not sufficient to support a determination of obviousness (slip op. at 14-15); (4) hindsight has no place in an obviousness analysis (slip op. at 17); and (5) Applicant is entitled to a careful, thorough, professional examination of the claims (slip op. at 7, 23, in which the Supreme Court remarked that a poor examination reflected poorly upon the USPTO).

For the foregoing reasons, the Applicants submit that the independent claims 5, 10 and 13 are not obvious in view of Excel or Browne, taken alone or in combination with any of the other cited references. It is submitted that the remaining dependent claims of record are also patentable for the same reasons. Withdrawal of the rejections under 35 U.S.C. 103 is respectfully requested.

All objections have now been addressed. However, if the Examiner deems that any issue remains after considering the response, he is kindly invited to call the undersigned to expedite the prosecution and work out any such issue by telephone.

Respectfully submitted,

Bereskin & Parr
Agents for the Applicant

By


Kendrick Lo
Reg. No. 54,948
(416) 364-7311